

WHAT IS CLAIMED IS:

1. An apparatus for detecting a contour of an object within an image, comprising:

a user interface for selecting first and second points within an object, said object being within an image; and

a processor for detecting first and second subcontours based on said first and second points, respectively, said first and second subcontours being based on detected edges, said processor combining said first and second subcontours into a contour.

2. The method of claim 1, said user interface further comprising at least one of a mouse having at least one selectable button, a keyboard, a track ball, a touch screen, and a touch pad.

3. The method of claim 1, said processor further comprising a pre-set limit, said pre-set limit defining image subsets with respect to said first and second points, said processor searching said image subsets for said detected edges.

4. The method of claim 1, further comprising an ultrasonic transducer for transmitting and receiving ultrasonic information, said processor creating said contour in real-time.

5. The method of claim 1, said image being based on one of diagnostic ultrasonic, X-ray, CT, and MR data.

6. The method of claim 1, further comprising a display for displaying at least one of said first subcontour, said second subcontour, and said contour.

7. The method of claim 1, said user interface further comprising an input for deselecting a point within said contour, said processor defining an updated contour excluding said point.

8. The method of claim 1, further comprising a display for displaying said first subcontour after said processor detects said first subcontour, said display erasing said first subcontour and displaying said contour after said processor combines said first and second subcontours.

9. A user interactive method for detecting the contour of an object within an image, comprising:

selecting a first point within an object using a user interface, said object being displayed within an image;

identifying a first subcontour based on said first point;

selecting a second point within said object using said user interface;

identifying a second subcontour based on said second point; and

defining a contour based on said first and second subcontours.

10. The method of claim 9, further comprising acquiring a diagnostic image comprising said object, said diagnostic image being one of ultrasonic, X-ray, CT and MR data and further comprising tissue data, said first and second subcontours being based on non-uniformities within said tissue data.

11. The method of claim 9, said first and second subcontours comprising nonintersecting image data with respect to each other, said method further comprising joining said first and second subcontours with first and second lines or tangents, said first and second lines or tangents being drawn based on top and bottom locations of said first and second subcontours, said contour being defined based on said first and second lines or tangents.

12. The method of claim 9, further comprising:

drawing a line within said object by dragging a pointer with said user interface, said line beginning at said first point;

defining outer and inner limits based on a pre-set limit with respect to said line, said outer and inner limits defining a search area; and

searching said image within said search area for non-uniformities, said contour being based on said non-uniformities.

13. The method of claim 9, further comprising:

displaying said first subcontour on a display;

displaying said second subcontour on said display;

erasing said first and second subcontours from said display after said defining step; and

displaying said contour on said display.

14. The method of claim 9, further comprising:

selecting a third point using said user interface;

defining a third subcontour based on said third point; and

calculating an updated contour based on said contour and said third subcontour.

15. The method of claim 9, further comprising:

selecting a point within said contour using said user interface, said point identifying a pixel/Voxel to be deleted;

identifying at least one subcontour including said point;

deleting at least one point associated with said at least one subcontour;

and

updating said contour based on said contour and said point.

16. The method of claim 9, further comprising:

selecting N points within said object using said user interface;

identifying N subcontours based on said N points, said contour further comprising being defined based on N subcontours, said contour comprising a closed loop or circle around an interior portion; and

updating said contour to include said interior portion.

17. A method for calculating and/or measuring parameters of an object within an image, comprising:

acquiring an image comprising an object, said image further comprising pixel or Voxel data;

selecting points within said object using a user interface;

searching for edges within said image around said points as said points are selected, said edges being representative of non-uniformities in said pixel or Voxel data, said edges defining subcontours around each of said points;

combining said subcontours into a contour as each of said subcontours is defined; and

calculating a parameter within said contour, said parameter being at least one of area, volume, circumference, long axis, short axis, and longest distance.

18. The method of claim 17, further comprising:

selecting at least one additional point;

searching for said edges within said image around said at least one additional point, said edges defining said subcontour around said at least one additional point; and

said combining step further comprising combining said subcontour and said contour to form an updated contour.

19. The method of claim 17, said image further comprising one of 2D and 3D tissue data.

20. The method of claim 17, further comprising:

said acquiring step further comprising acquiring a 3D volume of data;

said searching step further comprising searching for said edges around said points within said 3D volume, said subcontours forming irregularly shaped volumes based on said points; and

said combining step further comprising combining said irregularly shaped volumes into said contour, said contour comprising a single irregularly shaped volume.